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Detecting metabolic syndrome by surrogate measures of insulin resistance: the Qazvin Metabolic Diseases Study, Iran

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Abstract:
Numerous surrogate indices of insulin resistance have been developed for epidemiological studies. The aim of this study was to examine nine surrogate indices of insulin resistance based on fasting measurements for predicting metabolic syndrome in Qazvin, Iran. 480 men and 502 women aged 20 – 72 years from Minoodar district of Qazvin attended in this cross sectional study. The diagnostic criteria proposed by new joint Interim societies were applied to define metabolic syndrome. Nine indices of insulin resistance, including HOMA-IR, FIRI, IGR, ISI basal, QUICKI, Bennett's SI, McAuley's index, and the product of the triglycerides and glucose (TyG) index were evaluated. The receiver operating characteristic curves of surrogate indices for metabolic syndrome were depicted and compared. Of 982, 33.2% of the subjects had metabolic syndrome. The AUCs of HOMAIR, FIRI, ISI basal and QUICKI for metabolic syndrome were similar. The TyG index (AUC: 0.845) and McAuley's index (AUC: 0.795) had the greatest AUC to identify individuals with the metabolic syndrome, respectively but their difference was statistically significant. Although HOMA-IR is the most commonly used surrogate measure of insulin resistance, the TyG index can be useful for detecting metabolic syndrome.

Keywords:
Insulin Resistance, Triglycerides, ROC Curve, Metabolic Syndrome X

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